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Abstract O-03.5

iCULL – A HERD-SPECIFIC TOOL FOR FINANCIAL EVALUATION OF THE IMPACT OF PARATUBERCULOSIS

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Abstract text:

iCull (intelligent Culling) is a newly started Danish project. The objective is to develop an economic, herd-specific model, which should be implemented in a smartphone app / computer software and serve as a tool for individual farmers to aid decision making on individual cows.
The main focus will be on infections with Mycobacterium avium subsp. paratuberculosis (MAP), which can have a significant impact on the farmer´s economy. The iCull model can be used to evaluate the effect of control scenarios, such as breaking transmission routes by removing calves from their dam after birth or through pasteurization of colostrum, as well as for financial optimization of the culling approach in their herd.

The iCull model estimates the retention pay-off (RPO) of each individual cow, while existing models address management decisions on herd-level. The iCull model can be used to assess actions deemed to lower the MAP infection pressure for a specific herd, and will aid the farmer´s decision making in ad hoc decisions about culling animals. For example, it can be used to test the optimal age for culling cows taking into account the milk yield and MAP infection status of the specific cow based on diagnostic test results. The model can also be used to evaluate if it is financially worthwhile to try to eradicate MAP from a farm or if it will be more beneficial to control the infection, or do nothing. Lastly, the iCull model can be useful for evaluating the financial impact of keeping cows with consistently low ELISA results in spite of a single positive value and culling cows with repeated positive results. It might be more ideal to use different test interpretations in different herds, e.g. adjusting the test cut-off or using more than just the latest ELISA test.

Keywords:

Economic, ELISA, Simulation model